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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/827,088

04/19/2004

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9606

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27752 7590 08/05/2010  
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EXAMINER

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ART UNIT

PAPER NUMBER

3761

MAIL DATE

DELIVERY MODE

08/05/2010

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.



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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/827,088  
Filing Date: April 19, 2004  
Appellant(s): LIU, KUANG-KAI

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Andrew A Paul  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 5/24/2010 appealing from the Office action mailed 12/23/2009.

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**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The following is a list of claims that are rejected and pending in the application: Claims 1-16.

**(4) Status of Amendments After Final**

The examiner has no comment on the appellant's statement of the status of amendments after final rejection contained in the brief.

**(5) Summary of Claimed Subject Matter**

The examiner has no comment on the summary of claimed subject matter contained in the brief.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The examiner has no comment on the appellant's statement of the grounds of rejection to be reviewed on appeal. Every ground of rejection set forth in the Office action from which the appeal is taken (as modified by any advisory actions) is being maintained by the examiner except for the grounds of rejection (if any) listed under the subheading "WITHDRAWN REJECTIONS." New grounds of rejection (if any) are provided under the subheading "NEW GROUNDS OF REJECTION."

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**(7) Claims Appendix**

The examiner has no comment on the copy of the appealed claims contained in the Appendix to the appellant's brief.

**(8) Evidence Relied Upon**

US 4,931,051	Castello	6-1990
US 5,342,861	Raykovitz	8-1994
US 4,287,153	Towsend	9-1981
US 4,022,211	Timmons et al.	5-1977
US 5,458,590	Schleinz et al.	10-1995
US 5,595,754	Ito et al.	1-1997
US 6,297,424	Olson et al.	10-2001
US 4,249,532	Polansky et al.	2-1981
US 4,717,378	Perrault et al.	1-1988
US 5,389,093	Howell	2-1995
US 6,710,221	Pierce et al.	3-2004

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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2. Claims 1, 2 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Castello (US 4,931,051) in view of Raykovitz (US 5,342,861) and Townsend (US 4,287,153).

3. Regarding claims 1 and 8, Castello teaches a diaper having a backsheet (190), a topsheet (170) and an absorbent core (180). Castello teaches a color wetness indicator printed onto a surface of a backsheet of the diaper (col. 2, lines 30-62). Castello further teaches a coating or varnish over the wetness indicator to prevent premature activation (col. 5, lines 14-21). Castello uses hydratable salts which must be preferably combined with binder to reduce toxicity and any contact between the salts and a wearer's skin avoided (abstract; col. 3, lines 21-30). Castello's preferred hydratable salt is copper sulfate, which is a skin irritant (col. 3, lines 61-65)(see, e.g., International Resources Inc., Material Safety Data Sheet, Copper Sulfate, January 2001, [www.iri-us.com/msds/copper.html](http://www.iri-us.com/msds/copper.html)).

Castello does describe that a color can be become visible after reacting with water (Col 4, lines 32-35), which means that the color was invisible to the unaided eye before reacting with water.

Castello does not expressly disclose that the color wetness indicator is hydrolyzable and under goes a hydrolytic reaction upon wetting.

Raykovitz discloses a disposable article that has a wetness indicating agent that is substantially invisible in the dry composition but becomes a vivid color when wet (Col 3, lines 46-50 and 66-68 and Col 1, lines 9-11 and 18-21).

Townsend teaches an absorbent article (1) having a water indicator graphics (2) made of a latent color pigment material that undergoes a hydrolytic reaction in response to urine or saline water such that the graphic becomes visible (abstract; page 4, lines 13-65; page 9 line 49-page

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11, line 19; page 12, lines 1-52) Townsend's indicator uses water-insoluble polymeric ion exchanger and a water-insoluble polymeric exchanged-ion indicator, which don't have the same toxicity issues as Castello's hydratable salts. Furthermore, Townsend's indicator is non-leachable.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to substitute the graphics compositions of Townsend and Raykovitz for use as the wetness indicator material in the absorbent articles of Castello in order to provide a material that is known to be effective for that purpose and which lacks the toxicity of some hydratable salts.

4. Regarding claims 2, Townsend teaches the use of a liquid carrier for the dye/pigment and a solvent (col. 7, lines 1-6). Townsend does not disclose the % by weight of these materials.

Generally, differences in concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical. "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233,235 (CCPA 1955).

A particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation. *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977). In the instant case, increasing the amount of dye would increase the visibility of an image formed by the dye.

5. Claim 3 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Castello, Raykovitz and Townsend in view of Timmons et al. (US 4,022,211; hereinafter "Timmons").

Castello in view of Raykovitz and Townsend do not disclose alcohol as a solvent.

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Timmons discloses the use of alcohol as a solvent.

At the time of the invention it would have been obvious to one of ordinary skill in the art to select the alcohol of Timmons as a solvent in the device of Castello, Raykovitz and Townsend in order to provide a material that is known in the art to be suitable for that purpose.

6. Claims 4 and 5 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Castello, Raykovitz and Townsend in view of Schleinz et al. (US 5,458,590 A; hereinafter "Schleinz").

Castello, Raykovitz and Townsend do not teach the claimed acetate(s).

Schleinz teaches an ink blend comprising n-propyl acetate (col. 2, lines 44-67) or isopropyl alcohol (col. 5, lines 27-45) which improves crockfastness.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to use the acetate of Schleinz in the wetness indicator of Castello, Raykovitz and Townsend in order to provide improved adhesion of the ink to the substrate.

7. Claim 6 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Castello, Raykovitz and Townsend in view of Ito et al. (US 5,595,754 A; hereinafter "Ito").

Castello, Raykovitz and Townsend do not teach the claimed coating materials.

Ito teaches absorbent color-changing sheets which use polyamides as resins in an impermeable layer (col. 6, lines 33 and 34).

At the time of the invention it would have been obvious to one of ordinary skill in the art to select the polyamide construction of Ito to use as an impermeable layer in the device of Castello, Raykovitz and Townsend in order to provide a construction known in the art to be suitable for this purpose. MPEP § 2144.07.

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8. Claims 7 and 11 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Castello, Raykovitz and Townsend in view of Olson et al. (WO 00/76442 A1; hereinafter "Olson").

Regarding claim 11, Raykovitz discloses a disposable article that has a wetness indicating agent that is substantially invisible in the dry composition but becomes a vivid color when wet (Col 3, lines 46-50 and 66-68 and Col 1, lines 9-11 and 18-21). Townsend discloses that the wetness indicator color is latent and becomes visible after exposure to water via hydrolysis (Townsend, Col 2, lines 5-42 and Col 8, lines 57-64).

Regarding claims 7 and 11, Castello, Raykovitz and Townsend do not teach a wetness indicator printed on an inner surface.

Olson teaches an absorbent article having a changing wetness indicator printed on an inner surface of a backsheet (page 13, lines 8-12).

At the time of the invention, it would have been obvious to one of ordinary skill in the art to combine the graphic on the inner surface as taught by Olson with the absorbent article of Castello, Raykovitz and Townsend in order to provide partial protection from exterior humidity.

9. Claims 9 and 10 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Castello, Raykovitz and Townsend as in view of Polansky et al. (US 4,249,532; hereinafter "Polansky").

Castello, Raykovitz and Townsend do not teach varnish disposed beneath the color responsive composition.

Polansky teaches a seal coat underlying a graphic design as shown in Figure 3.



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At the time of the invention, it would have been obvious to one of ordinary skill in the art to provide a seal coat beneath a graphic as taught by Polansky in combination with the wetness indicating article of Castello, Raykovitz and Townsend in order to provide additional means of preventing premature activation.

10. Claim 13 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Castello, Raykovitz and Townsend in view of Perrault et al. (US 4,717,378; hereinafter "Perrault").

Castello, Raykovitz and Townsend do not teach the specific type of dye. Perrault teaches a method for detecting dehydration of a hydrogel which includes using D&C Red #27 (col. 2, lines 19-25). This particular dye is skin-contact grade.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to use the indicator dye of Perrault in the device of Castello, Raykovitz and Townsend in order to provide a substance known to be effective for that purpose and being of skin contact grade.

11. Claims 14 and 16 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Castello, Raykovitz and Townsend in view of Howell (US 5,389,093).

Regarding claim 14, Raykovitz discloses a disposable article that has a wetness indicating agent that is substantially invisible in the dry composition but becomes a vivid color when wet (Col 3, lines 46-50 and 66-68 and Col 1, lines 9-11 and 18-21).

Regarding claims 14 and 16, Castello, Raykovitz and Townsend do not disclose directly color composition that forms a carboxylic acid upon wetting.

Howell teaches a wetness indicating diaper that uses a thermochromatic ink that changes color in response to the change in temperature triggered by the presence of urine. The thermochromatic ink comprises a fatty acid. Fatty acids are a type of carboxylic acid. (See

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Hawley's Condensed Dictionary, 14th edition, 2002). The thermochromatic ink allows the diaper to be reusable, thus avoiding waste and cost associated with disposable diapers (abstract; col. 6, lines 13-29).

At the time of the invention, it would have been obvious to one of ordinary skill in the art to use the thermochromatic dye of Howell in the absorbent article of Castello, Raykovitz and Townsend in order to allow the article to be reusable and thus more economical than a disposable article.

12. Claims 12 and 15 rejected under 35 U.S.C. § 103(a) as being unpatentable over Castello, Raykovitz, Townsend, and Howell in view of Pierce et al (WO 00/76438).

Castello in view of Townsend, Raykovitz and Howell do not expressly disclose a breathable backsheet.

Pierce teaches a breathable backsheet (40) (page 16, line 17-page 17, line 3). This makes the absorbent article more comfortable to wear, touch. At the time of the invention, it would have been obvious to one of ordinary skill in the art to combine the breathable backsheet of Pierce with the absorbent article of Castello, Townsend, Raykovitz and Howell in order to provide for user comfort.

#### **(10) Response to Argument**

Regarding the rejection of Claims 1, 2 and 8 under 35 U.S.C. §103(a) as being unpatentable over Castello, Raykovitz and Townsend.

Applicant argues that Castello only shows hydration and not hydrolysis. Examiner disagrees. Although Castello does not explicitly state a hydrolyzable reaction, it does show a reaction for the change of color that is known to concurrently have hydrolysis, as shown as

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reaction 1 in Column 4, lines 23-24. Applicant argues that Castello fails to disclose a hydrolytic reaction where the invisible graphic becomes visible to the unaided eye. Examiner disagrees. Castello explicitly states that during reaction 1 the blue color becomes apparent during “a shift in bond energy from ultraviolet (vacuum),” which is invisible to the unaided eye, to the “ultraviolet (visible) range” as detailed in Col 4, lines 32-38. Raykovitz is cited to provide further evidence that it is well known in the art to have a wetness indicating agent that is substantially invisible in the dry composition but becomes a vivid color when wet.

Applicant asserts that Townsend does not teach a graphic that changes from invisible to visible as a result of hydrolysis. Examiner disagrees with this point but would first like to clarify that Applicant's arguments are different from what is disclosed in the claims because Applicant has left out the functional limitation specifying “unaided eye.” Applicant claims “a hydrolytic reaction resulting in said invisible graphic becoming visible to the unaided eye.” Being invisible to the unaided eye is subjective. Each person's eye vision is different. Some people may have weak vision and a graphic may be invisible to them but readily apparent to an individual with stronger vision. This leaves the claim open to broad interpretation. This means that a person who has poor vision may not be able to see a green graphic that is disposed on a green absorbent article until it is turned yellowish-orange as is detailed by Townsend in Example I (Col 14, lines 20-28). Furthermore, Townsend is not a direction substitution. Townsend is combined with Castello to show that hydrolyzable reactions are well known in the art, not to show how a graphic may turn from invisible to visible.

Applicant asserts that Townsend does not disclose hydrolysis. Examiner disagrees as Townsend provides basically a definition of how hydrolysis works when describing the reaction

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(Col 4, lines 24-28). The aqueous body excretions contain water and react with the insoluble polymeric ion exchange material to release either hydrogen ions (a cation exchanger) or hydroxyl ions (an anion exchanger). The water molecule has been split into hydrogen ions and hydroxyl ions, which is hydrolysis. The released ion contacts the insoluble polymeric acid-base indicator to undergo a color change (Col 4, lines 28-33).

Regarding the rejection of claim 3 under 35 U.S.C. §103(a) as unpatentable over  
Castello, Raykovitz, Townsend and Timmons.

Appellant relies on arguments regarding the rejection of claims 1, 2 and 8. Appellant states that Timmons does not overcome, nor does it cure, the deficiencies of the combination discussed above. Examiner disagrees with Appellant, as discussed above, because the combination does teach the claim limitations set forth in claims 1, 2 and 8. No arguments were presented towards Timmons, and the rejection is sustained.

Regarding the rejection of claims 4 and 5 under 35 U.S.C. §103(a) as unpatentable over  
Castello, Raykovitz, Townsend and Schleinz.

Appellant relies on arguments regarding the rejection of claims 1, 2 and 8. Appellant states that Schleinz does not overcome, nor does it cure, the deficiencies of the combination discussed above. Examiner disagrees with Appellant, as discussed above, because the combination does teach the claim limitations set forth in claims 1, 2 and 8. No arguments were presented towards Schleinz, and the rejection is sustained.

Regarding the rejection of claim 6 under 35 U.S.C. §103(a) as unpatentable over  
Castello, Raykovitz, Townsend and Ito.

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Appellant relies on arguments regarding the rejection of claims 1, 2 and 8. Appellant states that Ito does not overcome, nor does it cure, the deficiencies of the combination discussed above. Examiner disagrees with Appellant, as discussed above, because the combination does teach the claim limitations set forth in claims 1, 2 and 8. No arguments were presented towards Ito, and the rejection is sustained.

Regarding the rejection of claims 7 and 11 under 35 U.S.C. §103(a) as unpatentable over Castello, Raykovitz, Townsend and Olson.

Appellant relies on arguments regarding the rejection of claims 1, 2 and 8. Appellant states that Olson does not overcome, nor does it cure, the deficiencies of the combination discussed above. Examiner disagrees with Appellant, as discussed above, because the combination does teach the claim limitations set forth in claims 1, 2 and 8. No arguments were presented towards Olson, and the rejection is sustained.

Regarding the rejection of claims 9 and 10 under 35 U.S.C. §103(a) as unpatentable over Castello, Raykovitz, Townsend and Polansky.

Appellant relies on arguments regarding the rejection of claims 1, 2 and 8. Appellant states that Polansky does not overcome, nor does it cure, the deficiencies of the combination discussed above. Examiner disagrees with Appellant, as discussed above, because the combination does teach the claim limitations set forth in claims 1, 2 and 8. No arguments were presented towards Polansky, and the rejection is sustained.

Regarding the rejection of claim 13 under 35 U.S.C. §103(a) as unpatentable over Castello, Raykovitz, Townsend and Perrault.

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Appellant relies on arguments regarding the rejection of claims 1, 2 and 8. Appellant states that Perrault does not overcome, nor does it cure, the deficiencies of the combination discussed above. Examiner disagrees with Appellant, as discussed above, because the combination does teach the claim limitations set forth in claims 1, 2 and 8. No arguments were presented towards Perrault, and the rejection is sustained.

Regarding the rejection of claims 14 and 16 under 35 U.S.C. §103(a) as unpatentable over Castello, Raykovitz, Townsend and Howell.

Appellant relies on arguments regarding the rejection of claims 1, 2 and 8. Appellant states that Howell does not overcome, nor does it cure, the deficiencies of the combination discussed above. Examiner disagrees with Appellant, as discussed above, because the combination does teach the claim limitations set forth in claims 1, 2 and 8. No arguments were presented towards Howell, and the rejection is sustained.

Regarding the rejection of claims 14 and 16 under 35 U.S.C. §103(a) as unpatentable over Castello, Raykovitz, Townsend, Howell and Pierce.

Appellant relies on arguments regarding the rejection of claims 1, 2 and 8. Appellant states that Howell and Pierce do not overcome, nor does it cure, the deficiencies of the combination discussed above. Examiner disagrees with Appellant, as discussed above, because the combination does teach the claim limitations set forth in claims 1, 2 and 8. No arguments were presented towards Howell and Pierce, and the rejection is sustained.

#### **(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

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For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/B. L. H./

Examiner, Art Unit 3761

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